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from limb to limb, uttering from time to time, a low "kuk-kuk". She was unusually gentle and her attitude was one of curiosity more than fear. She soon satisfied her curiosity, however, and glided away into the brush. Not another glimpse could I get of her, though she answered my call several times.

On July 26 I again visited the lagoon. For nearly two hours I searched the brush in vain. From time to time I heard a bird calling a long distance up stream. At last one answered my call near by, and I quietly approached the spot from which the note came. I then repeated the call, only to have it answered farther on up stream. This continued; in all the time I was there, not a glimpse of a Cuckoo did I obtain. The cares of nesting were over and the Cuckoo was once more the wild shy bird of the upland timber. From the depths of the brush-grown banks, out over the deep still ponds of the old lagoon, floated an occasional "wandering voice", and another season of nesting troubles and paternal duties in the life of the California Cuckoo was over.

COURTSHIP OF THE AMERICAN GOLDEN-EYE OR WHISTLER (*CLANGULA CLANGULA AMERICANA*)

By WILLIAM BREWSTER ¹

WITH DRAWINGS BY L. A. FUERTES

ALTHOUGH Dr. C. W. Townsend has given us a recent and admirable account² of the manner in which the males of the American Golden-eye pay court to the females, this subject is still comparatively novel and so very full of interest that I am tempted to offer some observations of my own regarding it. They were noted briefly on loose slips of paper when I was making them, and written out more fully in my journal only a few hours later. As the journal description records them exactly as they impressed me at a time when they were fresh in my mind and recollection, I shall quote from it almost literally, making, indeed, no changes save such as seem absolutely necessary. The figures illustrating some of the poses assumed by the birds when "showing off" have been kindly drawn for me by Mr. Fuertes from rough sketches in my note book. The journal runs as follows:

Back Bay Basin, Boston, Massachusetts, Feb. 27, 1909. I saw and heard today for the first time, under exceptionally favorable conditions, the courting actions and love notes of the American Golden-eye (*Clangula clangula americana*). Dr. C. W. Townsend gave me some account of them last year, just after he had witnessed them in February or March. On February 24 of the present year he was kind enough to notify me that the birds had already begun to perform (on the 22nd I think). I have therefore taken advantage of the first favorable opportunity to learn something of the matter at first hand.

When I left our house about nine o'clock this morning the sky was cloudless, but a thin mist or haze obscured distant objects. The air had a sharp, frosty "tang", although the thermometer had already risen from 26° to 34° Fahrenheit. There was a light easterly wind, but it began to die away soon after I reached my

¹ Read before the American Ornithologists' Union Congress at Washington, November 13, 1910.

² Auk XXVII, no. 2, April 1910, pp. 177-179.

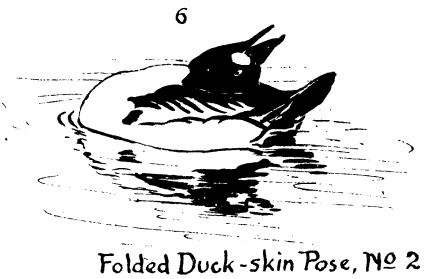
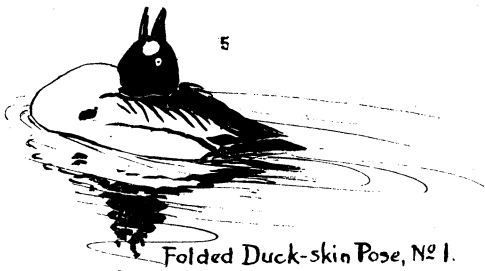
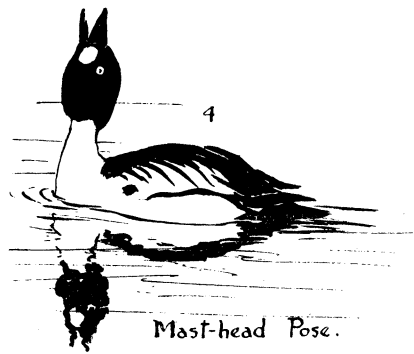
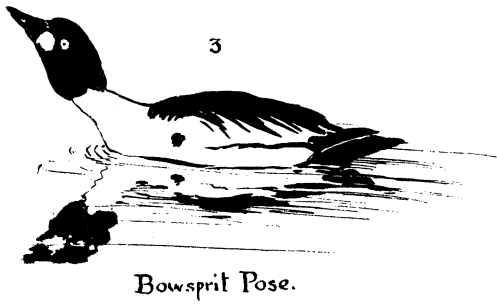
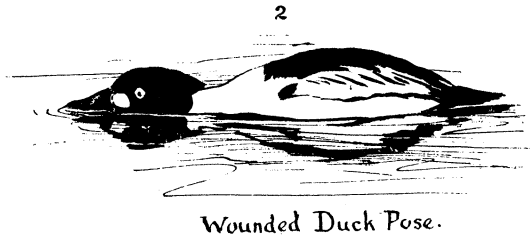
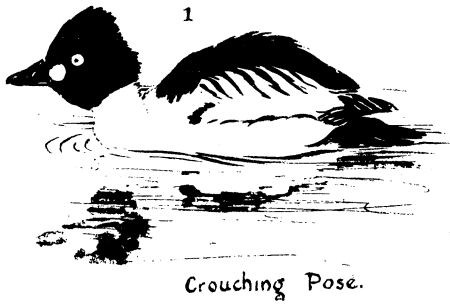


Fig. 15. COURTSHIP POSES OF GOLDEN-EYE
Drawings by L. A. Fuertes

destination and alighted from the electric car at the farther end of Harvard Bridge. No birds of any kind were then visible above (i. e., to the northwestward of) the bridge; but just below it I at once saw fifty or sixty Golden-eyes scattered about singly, in pairs and in small flocks on the slightly ruffled water. Walking down the roadway at the rear of the line of houses that front on Beacon Street I came to a pile of lumber on the recently filled parkway land about one hundred yards from the bridge and at the very edge of the river. Here I found a comfortable seat on which I remained for over an hour watching the birds through my glass and taking down brief notes of their behaviour from time to time. The lumber screened me somewhat from their view, but I doubt if this made any particular difference; for they did not seem to notice me when I stood up and walked about. Those nearest at hand were within shotgun range, those farthest removed not over two hundred yards away; the others were dispersed over the intermediate space, occurring most numerous, perhaps, about midway between its outer and inner confines, one hundred yards or so from where I sat. As many of them kept diving and shifting under water from one group to the next it was impossible to count them accurately, but the total number was not far from sixty. There were about thirty fully adult males, perhaps ten immature males (showing only a little white on cheeks and scapulars), and some twenty females. Most of the females appeared to have unicolor and dark brown or blackish bills, but one showed a conspicuous bar of golden yellow on the culmen just behind the nail and a well marked dusky band crossing the white on the wing. This bird was evidently closely similar to one that I sent to Professor Baird in December, 1871, which he pronounced to be an example of "*Bucephala Icelandica*"¹ but which I afterwards concluded was an aberrant specimen of *americana*. Another female had a short, abruptly tapering bill which appeared to be *almost wholly of a rich chrome yellow color*. The white on its wings was crossed by a conspicuous black bar and the brown of its head and neck was at least two shades deeper than in any of the other females, while its head had a purplish sheen which showed every time the sunlight struck it at just the right angle. All this I saw most plainly, for the bird was twice within forty yards of me and for half an hour within one hundred yards; moreover it was repeatedly joined by one or more females of the common Golden-eye with which I was thus enabled to directly compare it. Although I do not claim to have positively identified it, I have really no doubt that it was a perfectly typical representative of Barrow's Golden-eye. Dr. C. W. Townsend tells me that he observed a similar looking female near the same place on February 22nd. The one seen by me on the morning of the 27th kept by itself for the most part; but occasionally it joined, or was joined by, some of the American Golden-eyes, and once it swam a long distance in company with the female having the yellow bar on the bill, both birds being followed and *most assiduously courted* by seven or eight full-plumaged Whistler drakes who, moreover, continued to devote themselves to the female Barrow's Golden-eye after the other bird of the same sex (the aberrant *americana*) had left the group.

I had not been long at the lumber pile when the wind died away completely. During the next half hour the entire Basin was almost without a ripple and shining in the sunlight like a burnished mirror. The haze, too, had nearly disappeared. As the sun was behind me its light aided, rather than interfered with, my observation of the Golden-eyes. The females were comparatively inconspicuous, partly because of their sober coloring but also, I thought, because they habit-

¹ Cf. Brewster, Auk xxvi, Apr. 1909, pp. 154-155.

ually sank themselves deeper in the water than did the drakes. The latter, whether adult or immature, floated very lightly, showing the greater part of their bodies above the surface. Those in full nuptial plumage were handsome birds whose strongly contrasting black and white coloring made them conspicuous under all conditions and at long distances. When they were near at hand I could see the greenish iridescence on their big, fluffy heads glint and shimmer in the sunlight. Evidently they were quite conscious of their personal attractiveness, and devoted themselves to bringing it to the attention of the females by a variety of odd and interesting motions some of which were calculated to display it to the best advantage. They kept calling, also, uttering a queer, strident note wholly new to me. While thus engaged they were incessantly swimming to and fro, shifting from one group of birds to another and ever seeking or following the females with tireless persistence, but without haste and with a decorous restraint of manner most unusual in courting birds and very interesting to behold. By no means all the fully mature drakes took part in these proceedings. There were at least five or six of them who remained apart from the others, either in solitary state or each in company with a female apparently its mate, and who busied themselves during the entire time I had them under observation in diving for food or floating idly on the glassy surface, preening their feathers every now and then. The others, while actively employed in "showing off", in the presence of the females, indulged, as I have said, in a variety of movements, gesticulations and postures, all more or less grotesque and probably most of them peculiar to the season of love-making if not also characteristic of the ceremonial of Whistler courtship. I saw them all repeated many times under conditions very favorable for close and accurate observation. For convenience of treatment in describing them I shall first designate them by the following terms which, if somewhat fanciful, are, I trust, at least helpfully suggestive:

GESTICULATIONS

1. The *nod*—made with the head.
2. The *kick*—made upward with one or both (?) feet.
3. The *forward thrust*—of the head and neck.
4. The *upward thrust*—of the head and neck.
5. The *back thrust*—of the head and neck.

FIXED AND PECULIAR ATTITUDES

1. *The crouching pose.*
2. *The wounded duck pose.*
3. *The bow-sprit pose.*
4. *The mast-head pose.*
5. *The folded duck-skin pose.*

To these should be added, for purposes of comparison,

6. The *normal pose*—i.e., the position ordinarily taken by birds of both sexes when floating or swimming about.

The love note to which I have alluded may be known as the *bleat*. I do not like this term, for it is not accurately suggestive of the sound; but it comes nearer being so than anything else I can think of—hence its adoption. After hearing it hundreds of times this morning I should describe it as a short, flat, vibrant *paap* not unlike that of the Woodcock but a trifle more prolonged and also less harsh and incisive. It reminded me somewhat of the blast of a penny trumpet, less forcibly of the wheezy quack of a *drake* Black Duck. It did not

seem loud when uttered within fifty yards of me, yet I could hear it distinctly at four or five times that distance when the air was still. It was sometimes doubled (*paaap-paaap*) and occasionally trebled (*paaap-paa-paa*). I suspected at first that these doubled and trebled notes were produced by two or three birds calling nearly together but on studying the sounds closely I found that their component parts or syllables were each shorter than the normal single call and otherwise slightly different. This led me to conclude that the compound notes were probably made by single birds. Negative evidence supporting this inference was furnished by the fact that whenever I was able to watch several drakes performing in company I noticed that they always called in orderly succession, at distinctly separate intervals, and that their notes were of normal length and form. The intervals, however, were often very brief and when nine or ten birds were engaged at once their voices produced a volume of sound well nigh continuous and lasting perhaps for half a minute or more. This, softened by distance and coming over the glassy, sun-lit water from just where, it would have been difficult to determine had not its author been plainly visible, was by no means unpleasing in its general effect. But when the *paaap* was heard near at hand and critically regarded, it did not impress me so favorably. Indeed it is essentially unmusical and decidedly less attractive in quality than the humming-top sound made by the wings in flight to which the Whistler owes its familiar name and which was much in evidence this morning whenever the birds were moving from place to place. They rose from the water with great apparent ease and almost as quickly as Black Duck, despite the absence of wind. When they alighted they often struck the water almost at full speed, just after closing their wings, sending the spray flashing up into the sunshine and ploughing furrows yards in length as they slid over the surface before losing the impetus of flight. Besides the bleat and the whistling of wings I heard them make no other sound.

Just as the *paaap* was uttered—or perhaps a fraction of a second later—a slender shower or spurt of water, not unlike that emanating from an old-fashioned, metal garden syringe vigorously used, might often (but by no means invariably) be seen rising immediately behind the bird to a height of one or two feet. Sometimes it was thrown almost straight upwards, but oftener, it followed a long, elliptical or bow-shaped, backward curve, the heavier drops falling to the surface within a yard of the bird, the lighter ones striking two or three yards at its rear. This jet-like puff of mingled drops and spray was sometimes conspicuous at a distance of fully a quarter of a mile. It was produced, without question, by a vigorous and obviously most dextrous upward kick of the Whistler's broad, webbed feet which, indeed, I saw plainly more than once, jerked out of water just as the last drops were ascending into the air. When, as occasionally happened, the jet was doubled in volume, and also apparently somewhat divided at the base, I thought that the bird had made simultaneous use of both feet, but of this I could not be sure for I never actually saw more than one of them. Owing to its force and direction the kick caused the hinder portions of the bird's body to sink perceptibly in the water for an instant, after which these parts bobbed still more obviously upward before recovering the position usual to the floating or swimming bird.

The crouching posture. This was usually assumed directly from the normal swimming attitude and by an almost instantaneous movement, the head being thrust forward well above the surface, the neck deeply curved, the back somewhat humped. After remaining in this posture absolutely motionless for two or three seconds the Whistler would either resume its normal attitude or change to—

The wounded duck posture. In this the bird would lie with head and ex-

tended neck flat on the surface, and with its body so deeply immersed that from bill to tail it showed no part much higher than the rest, looking, indeed, like a stick or reed-stem partly submerged. I have frequently seen a wounded Black Duck or Blue-winged Teal do nearly if not exactly the same thing when trying to escape observation. The Golden-eyes maintained this posture anywhere from one or two to eight or ten seconds at a time.

Forward thrust of head and neck ending in the bowsprit posture. The drakes assumed this attitude by suddenly thrusting their heads and necks forward and upward from the normal position (this was evidently the usual way) or by raising them more slowly from the crouching or the wounded-duck posture. I saw them take it a dozen times or more. On each occasion the bird remained absolutely motionless for several seconds with its neck elongated to the utmost and held perfectly straight and rigid at an angle with the water of about 45° , suggesting the bowsprit of a vessel of ancient type. Although this pose is apparently taken less frequently than some of the others, it appears to be not less deliberate and pronounced than the rest and equally expressive of emotions due primarily to sexual excitement. During its continuance the feathers of the head were sometimes fluffed out, but oftener pressed down so very flat that the head looked scarce thicker than the neck which, because of its unusual elongation, appeared abnormally slender. The bill was only slightly opened. As a rule the bird kept silent when in this position, but twice I *saw*, as well as heard, it bleat. In one of these instances it kicked up water just as it uttered the *paaap*; in the other this action was omitted. When the head was raised to the bow-sprit posture from the crouching or the wounded-duck pose the movement was not especially rapid; but when it was thrust directly forward and upward from the normal position the action was so swift and abrupt that my eye could scarce follow it. Although I witnessed the bowsprit posture a number of times it was assumed less often than either of the two fixed positions which I am about to describe.

Upward thrust of head and neck ending in the mast-head posture.

Ordinarily this movement was complete in itself and made directly from—as well as back to—the normal position. Occasionally, however, it closely preceded or immediately followed a still longer backward swing—yet to be described. In the pose to which it commonly led—i. e., the *mast-head pose*—the Whistler's neck might be elongated and straightened, as in the *bow-sprit posture*, and held stiffly erect, or it might be so shortened and curved that the occiput almost touched the back between the shoulders. In either case the bill was invariably well opened and pointed skyward for several seconds during which the head and neck were kept perfectly rigid. At the close of this brief period of inaction the bird frequently uttered its *paaap* and kicked up spray, but oftener than not I heard no sound and saw no water fly.

Back thrust of head and neck ending in the folded duck-skin posture. Sometimes made from the mast-head posture but far oftener directly from the normal position, by a single uninterrupted upward and backward swing of the head and neck; this movement was so swift and sudden that I often failed to follow it even when watching for it with my attention concentrated on a bird which I felt confident was about to make it. At its termination the neck lay extended along the back and so very flat and close that it was scarce noticeable. The head showed conspicuously enough, resting apparently on the occiput at a point anywhere between the middle of the back and the rump, with the widely-parted mandibles pointing straight upward. When in this posture the bird bore a ludicrously close resemblance to a duck skin prepared after the style so much in vogue thirty or

forty years ago, that is to say with the neck folded over on the back. In the skin, however, the head was differently disposed, being placed on its side to save as much vertical space as possible in the cabinet drawer. The living bird would ordinarily remain in the attitude just described from half a second to a full second or perhaps two seconds but rarely longer than that. At the close of this brief period of inaction the head and neck would swing forward, usually less rapidly and abruptly than when carried backward, sometimes pausing for a moment when the mast-head posture might be taken, but, as a rule, continuing to move without decided halt until the normal position was resumed. Rather oftener than not this entire performance was unaccompanied by any sound that reached my ears, even when the birds were near at hand, but not infrequently the *paaap* was heard. As nearly as I could ascertain it was given only when the head was raised above the back or shoulders and either moving slowly forward or fixed for an instant, perhaps in the mast-head position; but it was difficult to be sure about this, for allowance had to be made for the time required for sound to travel one or perhaps two hundred yards. It is possible, therefore, that the note was occasionally uttered when the occiput of the bird was still resting on its back or rump, but if so I failed to satisfy myself that such was ever the case. The best evidence as to the precise instant when the call was emitted was afforded, I thought, by the shower of water that the bird usually (but by no means invariably) kicked into the air when calling. As nearly as I was able to determine, this action either accompanied or very closely followed the production of the vocal note. It may be however that the interval between the two is longer than my observations have led me to suppose.

The Whistler drakes often indulged in forms of gesturing or posturing more or less nearly akin to some of those already described yet different in certain respects. Thus they would sometimes take the bowsprit or topmast posture without becoming rigid in it or maintaining it for more than a fraction of a second. Frequently they would dip their bills in the water and then extend them as far forward or upward as they could well reach, at the same time opening and closing their mandibles and quivering their throats as if swallowing rather violently. On closely approaching one another or one of the females they often bobbed their heads up and down two or three times in quick succession. This seemed to be a form of polite salutation, but it may have had a different meaning. During most of the more pronounced movements of the head, and not infrequently when it was held at rest, its feathers were alternately raised or fluffed and depressed or flattened down, so that at one instant it looked almost twice and at the next barely one-half its usual size. This was probably done to show the plumage of the head to the best advantage. At least I so concluded as I watched its greenish sheen flash and glimmer in the sunlight and then disappear, to blaze out again with renewed lustre a moment later. The changes in the adjustment of the feathers of the head resulted also in striking and very interesting variations in its apparent shape.

When two or more males were showing off in the presence of the females they seemed to perform in a spirit of friendly, or, at least, dispassionate, rivalry. Not once during the entire morning did I see one of them exhibit any trace of animosity or unfriendliness towards another. There were no threatening or intimidating gestures and no apparent desire to interfere with one another in any way even when several males were grouped about a single female. Indeed they appeared to be almost wholly absorbed in their attentions to the females and to maintain towards one another an air of cool yet perfectly polite indifference or aloofness. This apparent absence of any sexual jealousy on their part struck me as being very re-

markable. I wonder if it continues to be absent later in the season when sexual intercourse is near at hand.

The more elaborate of the ceremonials of courtship above described were seldom if ever performed this morning by solitary males, even when accompanied by females, nor did they occur when females were absent or far removed. Indeed I witnessed them only when at least two or three, oftener four or five, and sometimes as many as *nine* drakes were in rather close association with one or more females. Often the males would collect about a female in a rather scattered group and entertain her for minutes at a time by their grotesque actions and peculiar love calls. Whenever this happened the female remained, for the most part, comparatively inactive and apparently quite indifferent to the attentions of her showy admirers, although she might occasionally single out and obviously encourage one of them by approaching him closely and bobbing her head up and down a few times. To this salutation he would immediately respond by a corresponding action before beginning his more elaborate performances again. Sometimes the female would suddenly assume the crouching posture which would be instantly imitated by one or more of the males. Once I saw a bird which was unquestionably a female, first nod, next crouch, and then take the bowsprit pose! This behaviour on her part created intense excitement among the attendant drakes who, to the number of at least five or six, crowded close about her for a moment, but were quickly dispersed, I thought by some aggressive movement on her part although the whole thing occurred so quickly that I could not see exactly what happened at the end.

For nearly half an hour a picturesque line of birds, consisting of nine full plumaged males and two females, paraded on the glassy water well off shore and about two hundred yards from where I was sitting. They swam back and forth, over a perfectly straight course three hundred yards and more in length, moving slowly but steadily in single file, the females close together and ever in the lead, the proud drakes following them and each other at intervals varying from six or ten to fifteen or twenty feet. Although this orderly procession seldom halted, even for an instant, the males were almost incessantly posing and bleating and kicking up the little jets of water at their sterns, as they glided sedately over the calm surface of the bay. Apparently they performed by turns, not in any regular order nor at uniform intervals, but wholly at hap-hazard as far as sequence was concerned, although each bird seemed to take pains not to begin until his immediate predecessor had nearly or quite finished. The females swam slowly on in advance without once turning their heads or giving other evidence that they noted what was happening behind them; nevertheless, it probably did not escape their close and critical attention, for ducks, like many other birds, can see well enough to the rear when their bills are pointing straight ahead. I watched this scene with absorbing interest because of its novelty and picturesqueness. A small group of Golden-eyes which, for a shorter time, paraded in a similar manner nearer at hand, included three drakes in full nuptial dress and two in immature plumage.

The latter birds were distinguishable from the single female to which they were paying attention, only by their much larger size and by the presence of a few white feathers among their scapulars and on their heads. Yet they posed and bleated to her quite as ardently as did the older drakes, seeming, indeed, to have already mastered all the arts and graces of Whistler courtship.

When not absorbed in watching the courting birds I paid some rather close attention to those which were diving for food. As far as I could see (and they were very near me at times) their wings were always kept tightly closed or folded as long as they remained in sight. Their tails were invariably spread to the utmost

possible width just as they disappeared. As a rule the downward plunge was made without much apparent effort, the bird simply immersing its head and then vanishing with surprising if not mysterious quickness. Occasionally, however, it would spring upwards and forward in the manner of a Grebe or Merganser, sometimes showing not only the entire outline of the lower parts of the body above the surface but also the whole of the legs and feet, just before re-entering the water. This may be done to give greater impetus to the descent; but I observed that the same bird would sometimes alternate one method with the other during a succession of dives made over exactly the same spot.

THE PALLID WREN-TIT (*CHAMAEA FASCIATA HENSHAWI*)

By J. H. BOWLES

TO any bird student who has not previously made their acquaintance, the Wren-Tit must at once stand in the foremost rank of all the California birds. *C. f. henshawi* is the form of this species that is found in the vicinity of Santa Barbara, the locality in which all of the following notes have been made.

The Wren-Tits are most certainly well named, for their general appearance and shape at once remind one of a greatly magnified Bush-Tit. Add to this their wren-like fondness for haunting the ground and low brush, peering out at you with tail aloft, and the name forms an ideal combination. Occasionally, however, they may be seen gleaning insects among the topmost branches of a live-oak, the tit in them seeming to have asserted the mastery over the wren for the time being.

Eternal cheerfulness is theirs, beyond a doubt, for they sing every day in the year, be it rain or shine. Their two songs differ completely, and here again they seem to demonstrate their right to a hyphenated family name. The most common song is a rather loud and very pleasing wren-like trill, which, incidentally, nine people out of ten in southern California will tell you is that of the Canyon Wren. The other song is a succession of about six or eight, loud and somewhat chicken-tike *peeps*, rapidly executed and hardly worthy of being called a song. It is quite different from anything else that I have ever heard, except that it forms a very fair elaboration of what some of the Tits consider their song notes.

In the matter of food they appear to be very nearly omnivorous. Their main staples are bugs, beetles, larvae and insects of all descriptions, but they are also fond of the smaller berries, such as those of the Poison Oak (*Rhus diversiloba*). For a time I made some attempts at trapping the smaller mammals, using dry bread or cheese as baits, but it was necessary to give this up, as upon every visit to the traps I found that one or more Wren-Tits had succumbed to the temptation of these new items on the bill of fare.

Around Santa Barbara they are resident throughout the year, and to the best of my belief remain mated for life. This theory is based upon the fact that they are almost invariably found travelling in couples; for, should you, at any season come upon one bird, another is sure to be only a few feet distant. Nest building commences during the last two weeks of March, my earliest full set of fresh eggs being found on April 4. From that time, eggs may be found until at least the second week in May, but I have seen no evidence to conclude that more than one brood is reared in the season. A rocky hillside, thickly covered with live-oak bushes is the favorite nesting site in this locality, though they may sometimes be